

Miami-Dade County Wastewater Reuse. DRAFT (9/11/98)

Description of Simulations

Both the No West and No South Miami-Dade Reuse simulations were derived from the C & SF Restudy ALT D13R simulation by removing the reuse component. For the No West Miami-Dade Reuse Scenario (**NoWDR**), a 307.0 acre-feet per day reduction was modeled. For the No South Miami-Dade Reuse Scenario (**NoSDR**), a cumulative 402.0 (202.0 + 200.0) acre-feet per day reduction was modeled.

Assumptions

The reuse components (BBB and HHH) will be physically removed in the proposed scenario runs.

The functionality (inflow and outflow rules) will not be explicitly transformed or redirected elsewhere in the system, however, it is expected that other ALT D13R components will perform differently in an effort to meet system-wide objectives.

Summary of Results

- Removing the WDR component (NoWDR) will lower the stage in Bird Drive Reservoir two feet for approximately 70% of the simulation and between one to two feet for the remaining 30% of the simulation (Figure 1). NoWDR lowers the L-31N Canal stage at S-174 between 0.2 to 0.4 ft approximately 20% of the time (Figure 2).
- Simulated wet and dry season surface flows into Biscayne Bay (from LECSA-3) decrease significantly for NoSDR and to a small extent for NoWDR. NoSDR decreases in mean annual dry and wet season flows are 60 and 62 thousand acre-feet, respectively, as compared to AltD13R (Figure 3). These decreases are most significant in the Central and South Bay (Figure 4)
- NoWDR simulates a 5 to 6 month (26-35%) increase in the number Water Supply Cutback months for each LECSA primarily due to a Lake Okeechobee SSM trigger and a corresponding dry season trigger which occurred in 1991. NoSDR simulates an 8 month (50+%) increase in the number Water Supply Cutback months for LECSA3 primarily due to increased local triggering in 1985, 1988 and 1989 (Figure 5).
- Mean annual water supply deliveries for the five drought years to the LECSA3 increase for both the NoSDR (18 thousand acre-feet increase) and the NoWDR (23 thousand acre-feet increase) over AltD13R (Figure 6). There is also a significant decrease in the contribution of Bird Drive Basin reservoir (from 108 thousand acre-feet/year to 74 thousand acre-feet/year) in maintaining canals in LECSA3 during drought years with NoWDR due to excessive lowering of stages in the reservoir (Figure 1). For the entire 31

year simulation, the LECSA3 increase in supply deliveries for NoSDR is 9 thousand acre-feet annually and for the NoWDR is 14 *thousand acre-feet* annually as compared to AltD13R deliveries (Figure 7). These supply delivery increases are satisfied by taking water from Lake Okeechobee. In general, NoWDR shows a more significant impact on the regional system's capacity to supply water to LECSA3.

- NoWDR simulates a 4% increase in the number of times Lake Okeechobee minimum stages occurs (Figure 8) as well as an increase in undesirable stage events (Figures 9 and 10). Mean Annual LOSA irrigation demands not met increase by 1% (Figure 11).
- NoWDR simulates reduced overland flow both through Central Shark River Slough (40 thousand ac-ft less, Figure 12) and within the ENP (39 thousand ac-ft less to west of L-31N and 37 thousand ac-ft less across L-67 as compared to AltD13R (Figure 13)
- Indicator region 11 in Northeast Shark River Slough shows:
 - one less inundation event (from 7 to 6 events) when the western reuse component is removed, but no change in the average annual percent of time the region was inundated.
 - 3 fewer high water events (from 10 to 7 events) when the western reuse component is removed, and one less event (from 10 to 9), when the southern reuse component is removed. The average annual percent of time the area exceeds the high water criteria (depth > 2.5ft) does not change significantly (~4% of the time).
 - one less low water event (from 3 to 2) when the western reuse component is removed, and a slight increase (from 0 to 1%) in the percent of time the area exceeds the low water criteria (depth < -1.0ft). No change was observed when the southern reuse component is removed.

TABLE 1.

Inundation Duration Summary for Indicator Regions

Indicator Region Number	Name	#Events		Avg Flood Dur (Wks/Event)				Avg Ann Hydper				(Percent of Yr)				NOSDR	NOWDR		
		NSM45F	95BSR	50BSR	ALTD13R	50BSR	ALTD13R	50BSR	ALTD13R	50BSR	ALTD13R	50BSR	ALTD13R	50BSR	ALTD13R				
1	Taylor Slough	37	33	76	37	32	73	38	30	71	36	32	72	36	32	71	36	32	71
2	West Perrine Marl Marsh	68	9	39	70	9	39	70	9	38	67	9	39	67	9	39	68	9	39
3	Mid-Perrine Marl Marsh	43	23	60	41	24	61	51	17	53	50	17	54	50	17	53	51	17	53
4	C-111 Perrine Marl Marsh	47	21	62	73	12	55	71	13	59	45	27	76	42	29	75	44	28	75
5	Model Lands South	55	19	64	64	14	57	71	14	60	34	40	84	37	36	84	33	41	84
6	Model Lands North	43	27	72	97	6	37	87	7	36	109	7	45	102	7	43	110	7	45
7	Ochopee Marl Marsh	35	32	70	38	24	57	37	29	68	38	28	66	40	26	66	40	26	65
8	Rockland Marl Marsh	37	28	65	53	8	26	42	17	45	36	26	59	36	26	59	36	26	57
9	SW Shark River Slough	9	176	98	19	75	89	15	98	91	10	156	97	10	156	97	9	173	96
10	Mid Shark River Slough	5	321	100	16	93	92	14	108	94	4	398	99	6	265	99	6	265	99
11	NE Shark River Slough	4	402	100	21	67	88	21	68	89	7	226	98	7	227	98	6	262	98
12	New Shark River Slough	32	42	82	29	45	80	32	40	80	27	52	87	27	52	87	31	45	86
13	West Slough	38	28	66	36	30	67	38	31	74	34	32	67	34	32	67	34	32	67
14	South WCA-3A	17	88	92	6	267	99	15	101	94	11	139	95	11	139	95	12	127	95
15	West WCA-3B	20	74	92	11	141	96	19	79	93	4	398	99	4	398	99	5	318	99
16	East WCA-3B	15	102	95	18	81	90	28	50	86	6	262	98	6	262	98	8	195	97
17	South Central WCA-3A	24	59	87	14	109	95	24	59	88	14	110	95	15	102	95	14	110	95
18	North Central WCA-3A	24	59	89	18	82	91	21	69	89	11	142	97	10	155	96	10	155	96
19	East WCA-3A	25	55	86	7	227	99	15	100	93	13	115	93	14	108	93	14	107	93
20	NW WCA-3A	21	70	91	33	40	81	27	51	86	19	75	88	22	65	88	25	57	88
21	NE WCA-3A	28	49	85	40	30	74	20	73	91	31	44	84	30	45	84	32	42	84
22	NW Corner WCA-3A	20	73	91	34	36	77	19	77	91	19	81	95	18	85	95	18	85	95
23	WCA-2B	21	70	92	21	63	82	17	82	86	20	66	81	20	66	81	20	66	81
24	South WCA-2A	20	74	91	19	76	89	16	90	89	18	78	88	18	78	88	18	78	88
25	North WCA-2A	30	46	86	16	86	85	19	77	90	16	93	92	16	93	92	16	93	92
26	South LNWR (WCA-1)	25	57	89	7	229	100	16	95	94	7	228	99	7	228	99	7	228	99
27	North LNWR (WCA-1)	15	99	92	13	119	96	20	72	90	16	96	95	16	96	95	16	96	95
28	Rotenberger WMA	40	31	76	52	18	59	38	34	79	41	31	79	43	30	79	42	30	79
29	Holey Land WMA	28	50	88	14	108	94	12	128	95	28	50	88	31	45	87	29	49	88
30	Corbett WMA	61	13	50	64	3	13	55	4	13	56	3	10	55	3	10	55	3	10
31	Mullet Slough	64	14	56	56	13	46	57	13	46	59	14	50	59	14	50	58	14	50
32	Upland Pine	56	15	51	56	15	53	57	15	52	57	15	52	57	15	52	57	15	52
33	Upper Mullet Slough	64	8	33	64	8	33	64	8	33	65	8	33	65	8	33	65	8	33
34	Cypress Marsh	36	35	78	42	12	31	42	12	31	42	12	31	42	12	31	42	12	31
35	Wet Prairie	31	43	82	42	19	50	42	19	50	42	19	50	42	19	50	42	19	50
36	Wetter Prairie NE	59	18	65	59	16	60	68	14	57	64	15	59	64	15	59	64	15	59
37	Wetter Prairie SW	58	17	63	65	14	56	71	12	54	67	14	58	67	14	58	67	14	58
38	Drier Cypress NW	67	10	40	67	9	38	68	9	38	68	9	39	68	9	39	68	9	39
39	Drier Cypress NE	62	14	55	65	12	48	64	12	48	66	12	50	66	12	50	66	12	50
40	Cypress	48	23	67	49	21	65	53	20	64	48	22	65	48	22	65	48	22	65
41	NW Big Cypress	54	16	53	59	12	46	59	12	46	59	12	46	59	12	46	59	12	46
42	NE Big Cypress	44	22	61	56	12	43	56	12	43	55	16	53	55	16	53	55	16	53
43	NE Corner Big Cypress	39	31	75	37	4	10	38	4	9	44	14	38	45	14	38	45	14	38
44	SW Big Cypress	62	14	54	60	14	54	60	14	54	60	14	54	60	14	54	60	14	54
45	Racoon Point	61	11	42	67	10	40	65	10	39	64	10	40	64	10	40	64	10	40
47	North C-111	48	20	60	92	5	26	58	4	14	55	10	35	54	10	34	55	10	34
48	North Bisc. Bay Groundwater 1	14	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	North Bisc. Bay Groundwater 2	49	15	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	Central Bisc. Bay Groundwater	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	South Bisc. Bay Groundwater	34	5	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Notes: #events = number of continuous ponding events over the period of record

Avg Flood Duration = [sum(days of ponding)/7]/#events

Avg Annual Hydroperiod = 100 x [sum(weeks of ponding per year)]/[52 x #years]

TABLE 2.

High Water Summary for Indicator Regions

Indicator Region Number	Name	Depth(ft) Criterion	#Events Avg Duration (Wks/Event) Avg Ann Duration(Percent of Yr)															NOSDR	NOWDR	
			NSM45F			95BSR			50BSR			ALTD13R								
1	Taylor Slough	> 1.5	10	2	1	7	2	1	5	2	0	5	2	1	5	2	1	5	2	1
2	West Perrine Marl Marsh	> 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Mid-Perrine Marl Marsh	> 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	C-111 Perrine Marl Marsh	> 2.0	0	0	0	0	0	0	0	0	0	0	10	3	2	9	3	2	11	3
5	Model Lands South	> 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Model Lands North	> 1.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Ochoppee Marl Marsh	> 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Rockland Marl Marsh	> 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	SW Shark River Slough	> 2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Mid Shark River Slough	> 2.5	5	11	4	1	1	0	1	1	0	5	6	2	6	5	2	5	6	2
11	NE Shark River Slough	> 2.5	15	10	9	0	0	0	0	0	0	10	6	4	9	6	4	7	7	3
14	South WCA-3A	> 2.5	0	0	0	33	18	36	10	9	6	2	9	1	2	9	1	2	8	1
15	West WCA-3B	> 2.5	6	6	2	2	10	1	6	12	5	5	10	3	5	10	3	5	10	3
16	East WCA-3B	> 2.5	7	9	4	6	8	3	15	9	8	13	7	5	12	7	5	11	7	5
17	South Central WCA-3A	> 2.5	0	0	0	6	10	4	4	9	2	2	9	1	2	9	1	2	9	1
18	North Central WCA-3A	> 2.5	0	0	0	5	5	2	2	10	1	3	7	1	3	7	1	3	6	1
19	East WCA-3A	> 2.5	0	0	0	37	23	53	23	8	11	27	12	19	25	12	19	27	11	19
20	NW WCA-3A	> 2.5	0	0	0	1	7	0	1	6	0	1	1	0	1	1	0	1	1	0
21	NE WCA-3A	> 2.0	2	2	0	2	8	1	2	9	1	6	7	3	6	7	3	6	7	3
22	NW Corner WCA-3A	> 2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	WCA-2B	> 2.5	4	5	1	20	13	17	15	60	56	25	7	10	25	7	10	25	7	10
24	South WCA-2A	> 2.5	0	0	0	3	1	0	5	2	1	4	4	1	4	4	1	4	4	1
25	North WCA-2A	> 2.5	0	0	0	0	0	0	1	1	0	3	1	0	3	1	0	2	1	0
26	South LNWR (WCA-1)	> 2.5	0	0	0	33	15	30	27	12	20	29	14	25	29	14	25	29	14	25
27	North LNWR (WCA-1)	> 2.5	0	0	0	4	1	0	1	1	0	1	1	0	1	1	0	1	1	0
28	Rotenberger WMA	> 1.5	17	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Holey Land WMA	> 1.5	22	8	12	34	16	34	32	21	41	30	4	7	30	4	7	30	4	7
47	North C-111	> 1.8	0	0	0	0	0	0	0	0	0	5	2	1	5	2	0	4	2	0
52	Pennsuco Wetlands North	> 2.0	16	8	8	5	2	0	5	6	2	6	4	1	7	4	2	6	4	1
53	Pennsuco Wetlands South	> 2.0	40	13	33	3	1	0	4	7	2	6	3	1	6	3	1	5	3	1

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Notes: #events = number of events with depths continuously greater than the criterion over the period of record

Avg Duration of High Water Events = [sum(days over criterion)/7]/#events

Avg Annual Duration of High Water(Percent) = 100 x [sum(weeks over criterion)]/[52 x #years]

TABLE 3.

Low Water Summary for Indicator Regions

Indicator Region Number	Name	Depth(ft) Criterion	#Events Avg Duration (Wks/Event) Avg Ann Duration(Percent of Yr)												NOSDR	NOWDR	
			NSM45F			95BSR			50BSR			ALTD13R					
1	Taylor Slough	< -1.5	20	4	5	24	4	6	28	4	7	28	4	7	28	4	7
2	West Perrine Marl Marsh	< -1.5	36	7	16	36	8	18	38	7	17	35	8	16	35	8	16
3	Mid-Perrine Marl Marsh	< -1.5	28	8	13	23	3	5	30	4	8	34	4	9	34	4	9
4	C-111 Perrine Marl Marsh	< 0.5	54	24	80	51	27	86	34	40	84	53	17	55	49	18	56
5	Model Lands South	< 0.5	56	23	81	48	29	88	41	37	95	80	14	68	82	13	68
6	Model Lands North	< 0.2	54	14	46	45	34	95	44	35	95	51	29	93	51	30	93
7	Ochopee Marl Marsh	< -1.5	17	8	9	21	10	13	22	7	10	22	7	10	22	7	10
8	Rockland Marl Marsh	< -1.5	21	10	13	45	10	29	38	10	23	22	10	14	23	10	14
9	SW Shark River Slough	< -1.0	1	5	0	18	4	4	12	4	3	3	2	0	3	2	0
10	Mid Shark River Slough	< -1.0	1	1	0	7	6	3	7	5	2	2	2	0	2	2	0
11	NE Shark River Slough	< -1.0	1	1	0	10	6	4	9	6	3	3	2	0	3	2	0
12	New Shark River Slough	< -1.0	17	7	8	17	8	9	21	6	8	13	5	4	13	5	4
13	West Slough	< -1.5	22	7	10	18	9	10	17	7	7	20	8	10	20	8	10
14	South WCA-3A	< -1.0	8	4	2	0	0	0	4	4	1	4	4	1	4	4	1
15	West WCA-3B	< -1.0	3	2	0	2	2	0	7	2	1	2	3	0	2	3	0
16	East WCA-3B	< -1.0	1	1	0	10	4	3	15	5	5	4	3	1	4	3	1
17	South Central WCA-3A	< -1.0	8	7	3	6	3	1	10	6	4	5	2	1	5	3	1
18	North Central WCA-3A	< -1.0	9	5	3	10	5	3	10	6	3	1	6	0	2	4	0
19	East WCA-3A	< -1.0	10	6	4	1	1	0	9	3	2	8	3	1	8	3	1
20	NW WCA-3A	< -1.0	6	6	2	16	7	7	11	7	5	9	5	3	9	5	3
21	NE WCA-3A	< -1.0	15	7	7	21	9	12	10	7	4	15	4	4	14	5	4
22	NW Corner WCA-3A	< -1.0	7	5	2	25	7	11	11	6	4	5	3	1	5	3	1
23	WCA-2B	< -1.0	5	5	1	14	7	6	11	7	5	14	7	6	14	7	6
24	South WCA-2A	< -1.0	6	8	3	12	5	4	8	8	4	12	7	5	12	7	5
25	North WCA-2A	< -1.0	8	8	4	10	9	5	8	7	3	4	9	2	4	9	2
26	South LNWR (WCA-1)	< -1.0	10	4	2	0	0	0	2	4	0	0	0	0	0	0	0
27	North LNWR (WCA-1)	< -1.0	8	4	2	1	4	0	5	5	1	1	3	0	1	3	0
28	Rotenberger WMA	< -1.0	18	8	9	33	9	19	20	4	6	18	3	4	18	3	4
29	Holey Land WMA	< -1.0	14	6	5	9	2	1	5	2	1	11	4	3	11	4	3
32	Upland Pine	< -7.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Cypress Marsh	< -6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Wet Prairie	< -6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Wetter Prairie NE	< -6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Wetter Prairie SW	< -6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Drier Cypress NW	< -5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Drier Cypress NE	< -5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Cypress	< -4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	NW Big Cypress	< -3.0	13	5	4	13	5	4	13	5	4	13	5	4	13	5	4
42	NE Big Cypress	< -3.0	6	5	2	10	6	4	10	6	4	9	5	3	9	5	3
43	NE Corner Big Cypress	< -3.0	0	0	0	21	6	7	22	6	8	22	6	9	22	6	9
44	SW Big Cypress	< -3.0	9	6	3	10	7	4	10	7	4	10	7	4	10	7	4
47	North C-111	< 0.0	47	14	41	88	14	76	58	24	87	55	19	66	53	20	67
48	North Bisc. Bay Groundwater 1	< -5.1	18	4	5	1	1612	100	1	1612	100	1	1612	100	1	1612	100
49	North Bisc. Bay Groundwater 2	< -5.0	0	0	0	21	75	98	11	145	99	11	146	100	10	161	100
50	Central Bisc. Bay Groundwater	< -7.5	3	3	1	76	12	56	105	10	66	130	7	59	114	9	64
51	South Bisc. Bay Groundwater	< -3.0	30	9	17	79	12	61	87	12	66	92	11	65	95	12	69
52	Pennsuco Wetlands North	< -1.0	3	2	0	22	5	7	29	5	9	4	4	1	3	5	1
53	Pennsuco Wetlands South	< -1.0	1	1	0	22	7	10	31	7	13	5	6	2	4	6	2

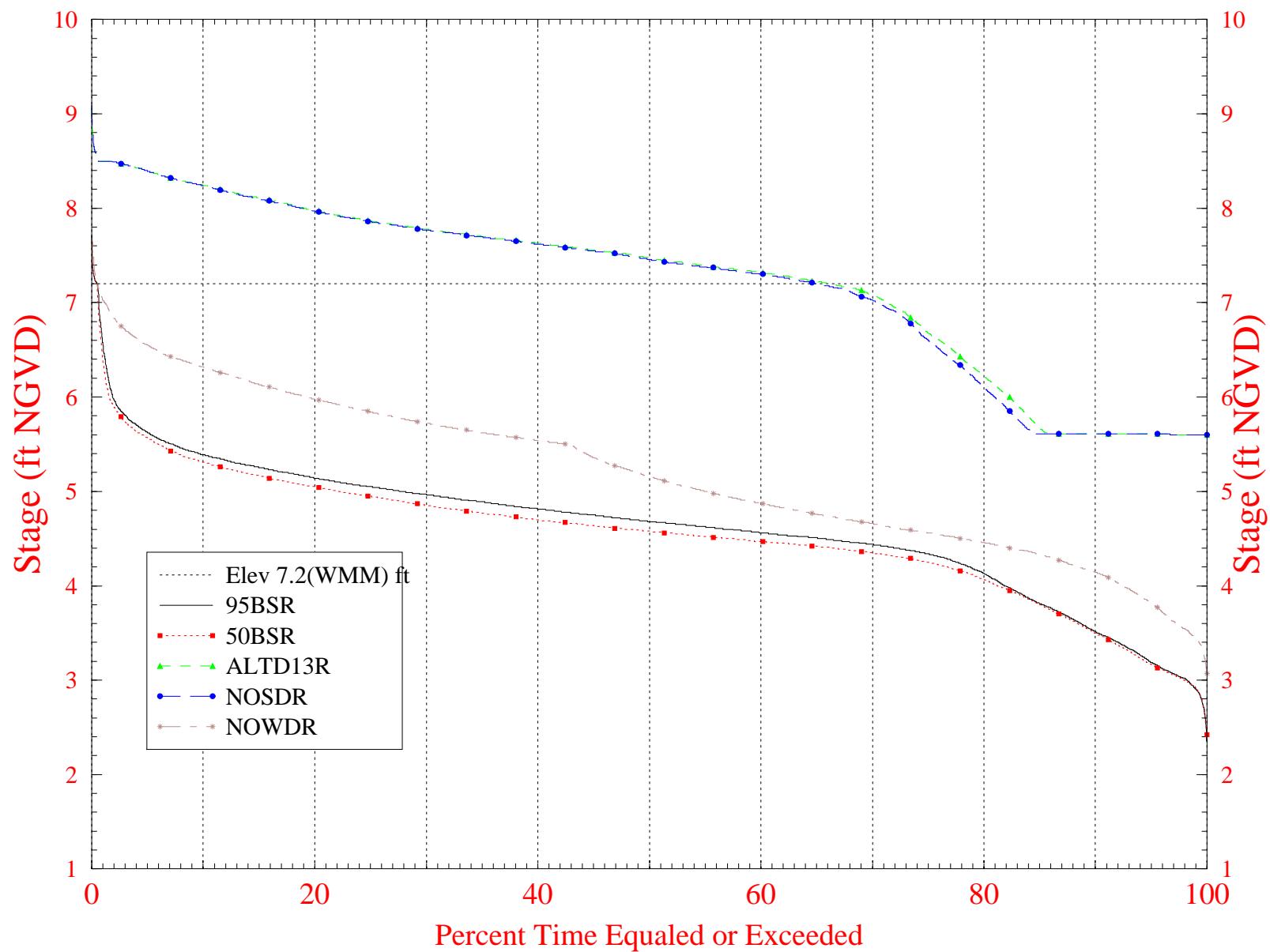
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Notes: #events = number of events with depths continuously less than the criterion over the period of record

Avg Duration of Low Water Events = [sum(days below criterion)/7]/#events

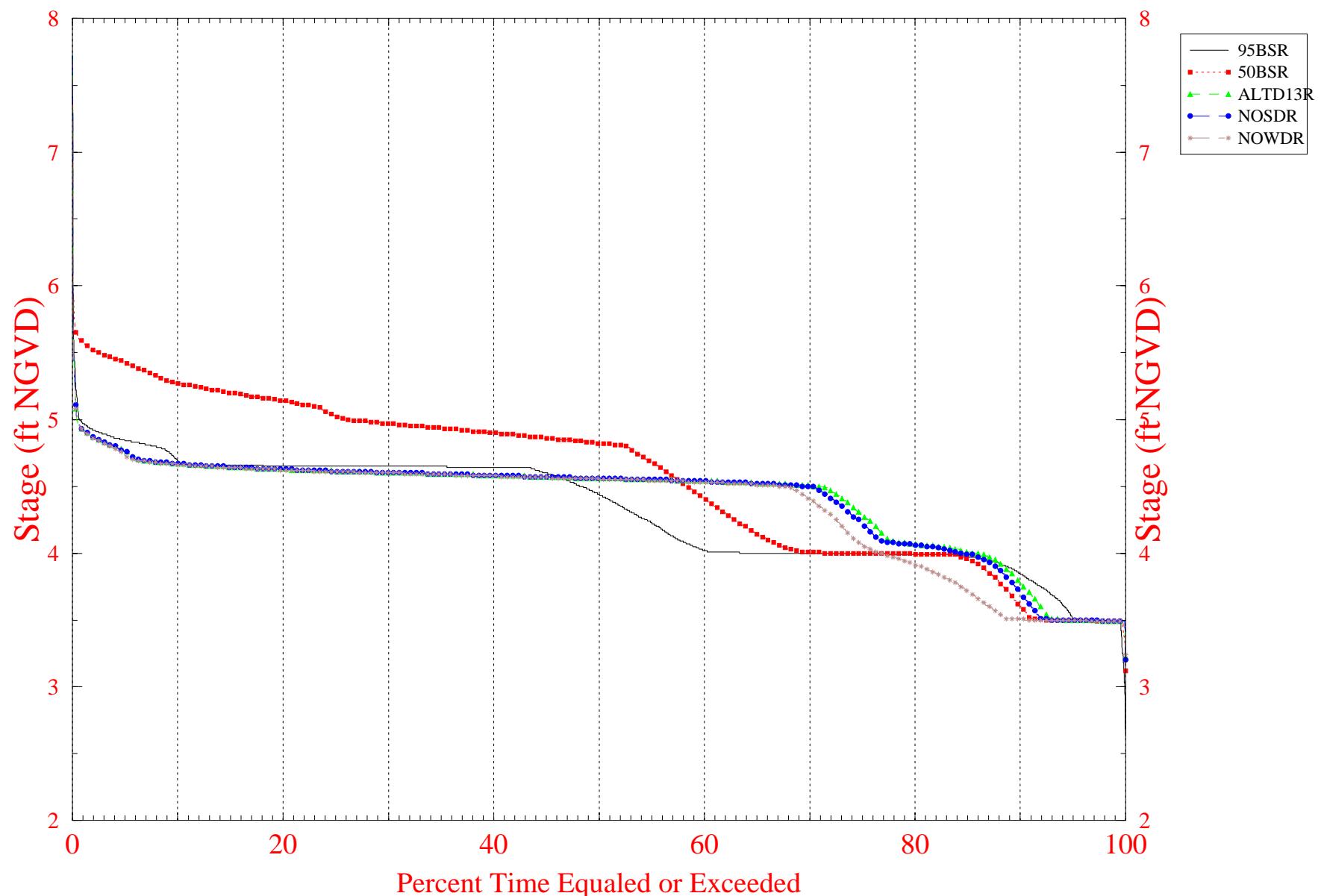
Avg Annual Duration of Low Water(Percent) = 100 x [sum(weeks below criterion)]/[52 x #years]

Fig. 1 Stage Duration Curves at Bird Drive Reservoir



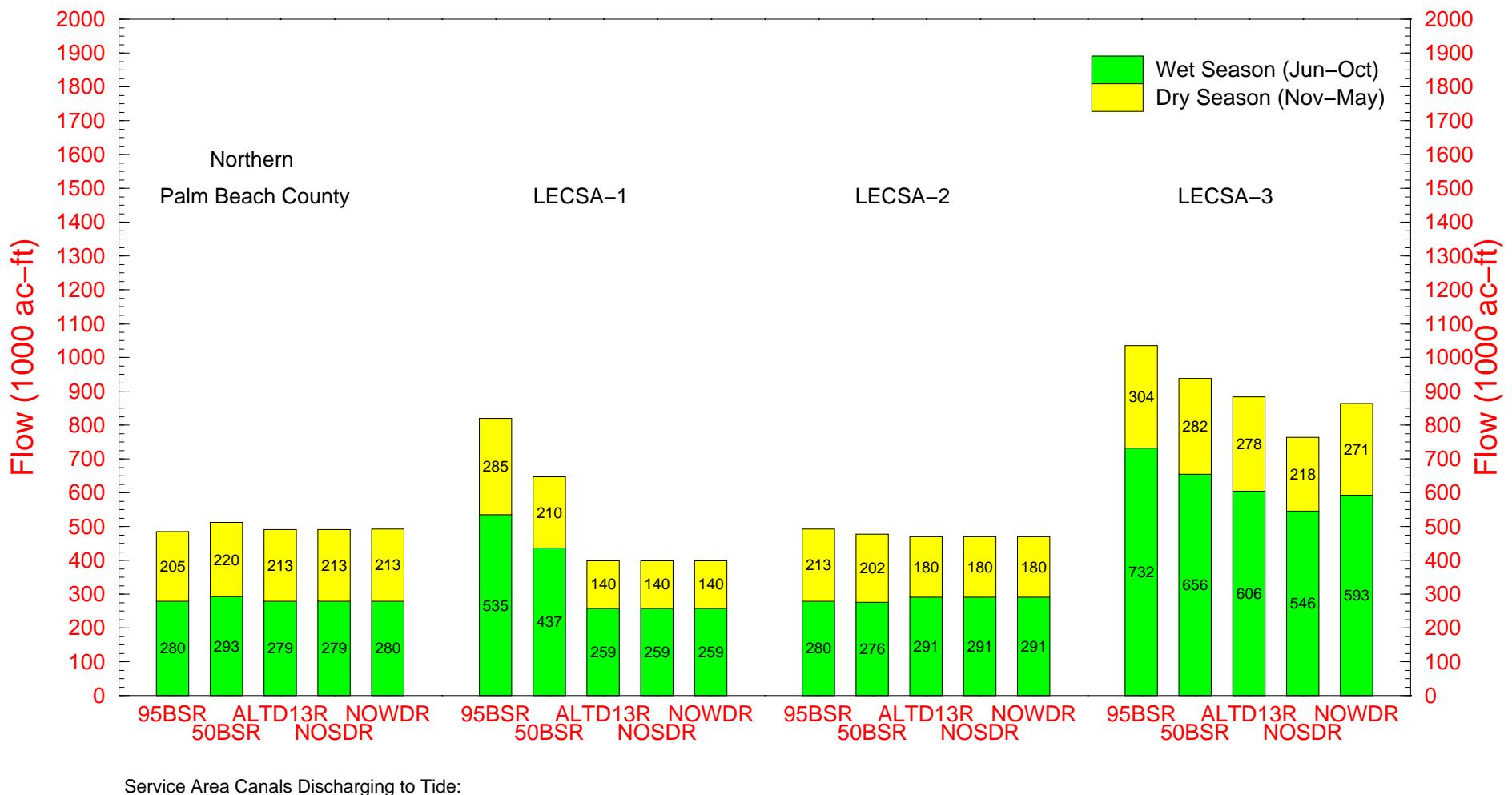
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For Planning Purposes Only
SFWMM V3.5

Fig. 2 Stage Duration Curves for L-31N Canal at S-174
 (Salt-Water Intrusion Indicator Stage = 2.1 ft, NGVD)



Run date: 07/22/98 01:23:37
 For Planning Purposes Only
 SFWMM V3.5

Fig. 3 Mean Annual Surface Flows Discharged to Tide from the LECSA for the 1965 – 1995 simulation period



Service Area Canals Discharging to Tide:

Northern PB Co. = C-17

LECSA-1 = C-51, C-16, C-15 and the Hillsboro Canal

LECSA-2 = C-14, C-13, C-12, North New River Canal and C-10

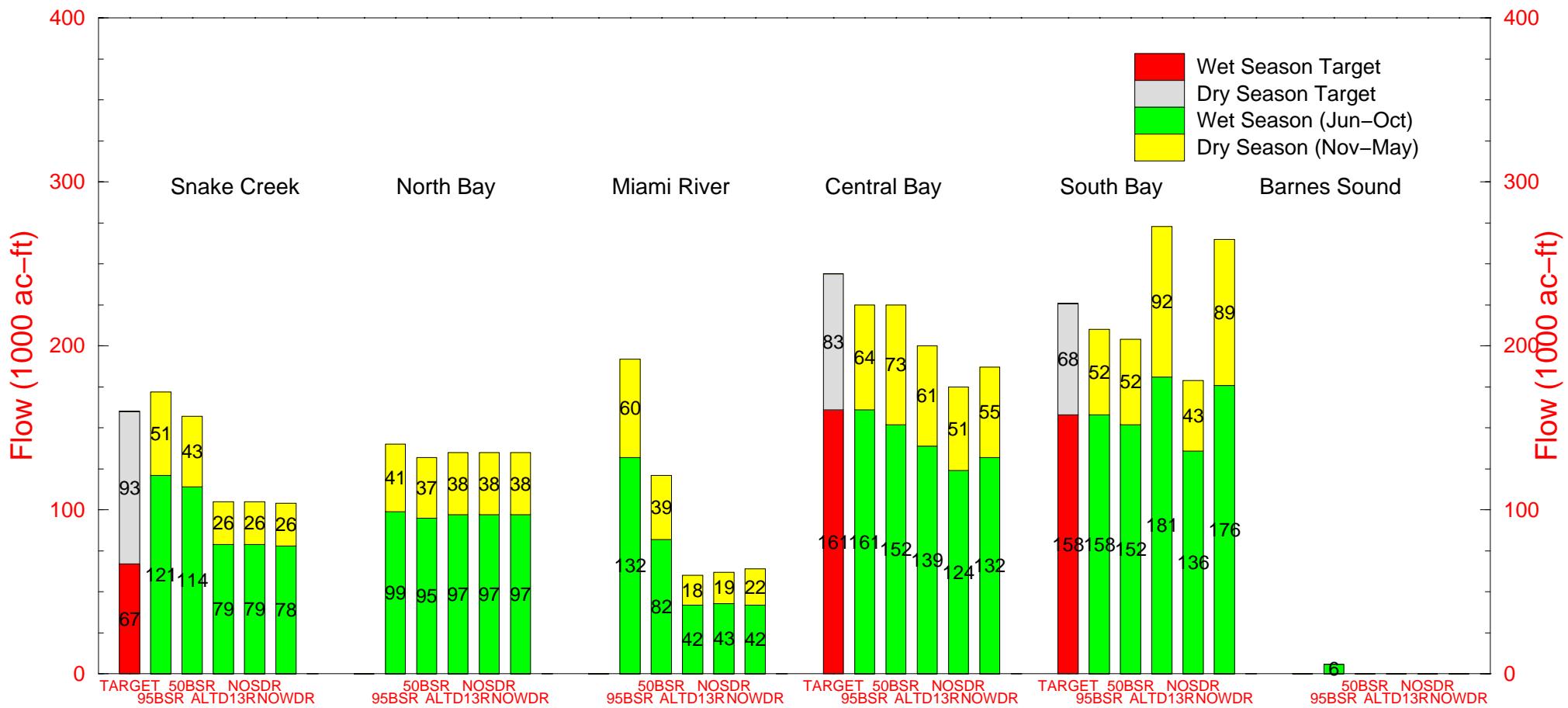
LECSA-3 = C-9, Miami Canal, C-8, C-7, Coral Gables Canal, C-2,C-100A, C-100B, C-1, C-102, C-103, Military Canal and Model Land Canal

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Fig. 4 Simulated Mean Annual Surface Flows Discharged into Biscayne Bay for the 1965 – 1995 simulation period



Note: Snake Creek=S29; North Bay=G58+S28+S27; Miami River=S26+S25B+S25; Central=G97+S22+S123; South=S21+S21A+S20F+S20G; Barnes Sound=S197

Targets for Central and South Bay reflect a 30% increase in mean annual dry season flows over the 95 Base

Targets for Snake Creek reflect a minimum monthly flow volume of 13,300 ac-ft (x 5 months for wet season and x 7 months for dry season) to maintain salinity levels below 20 ppt.

**Fig. 5 Volume of Simulated Water Supply Cutbacks by Use-Type
for the 1965 – 1995 Simulation Period**

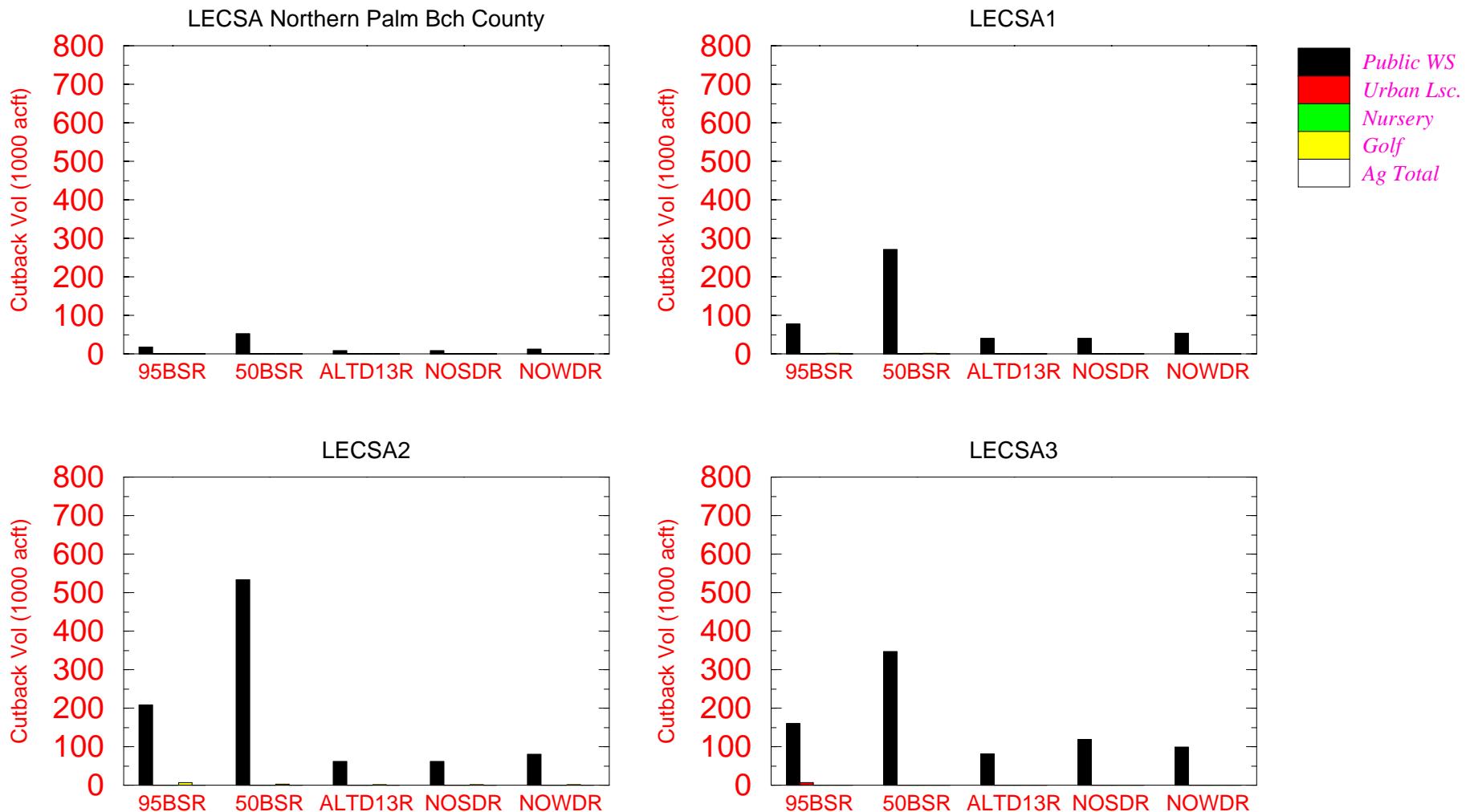
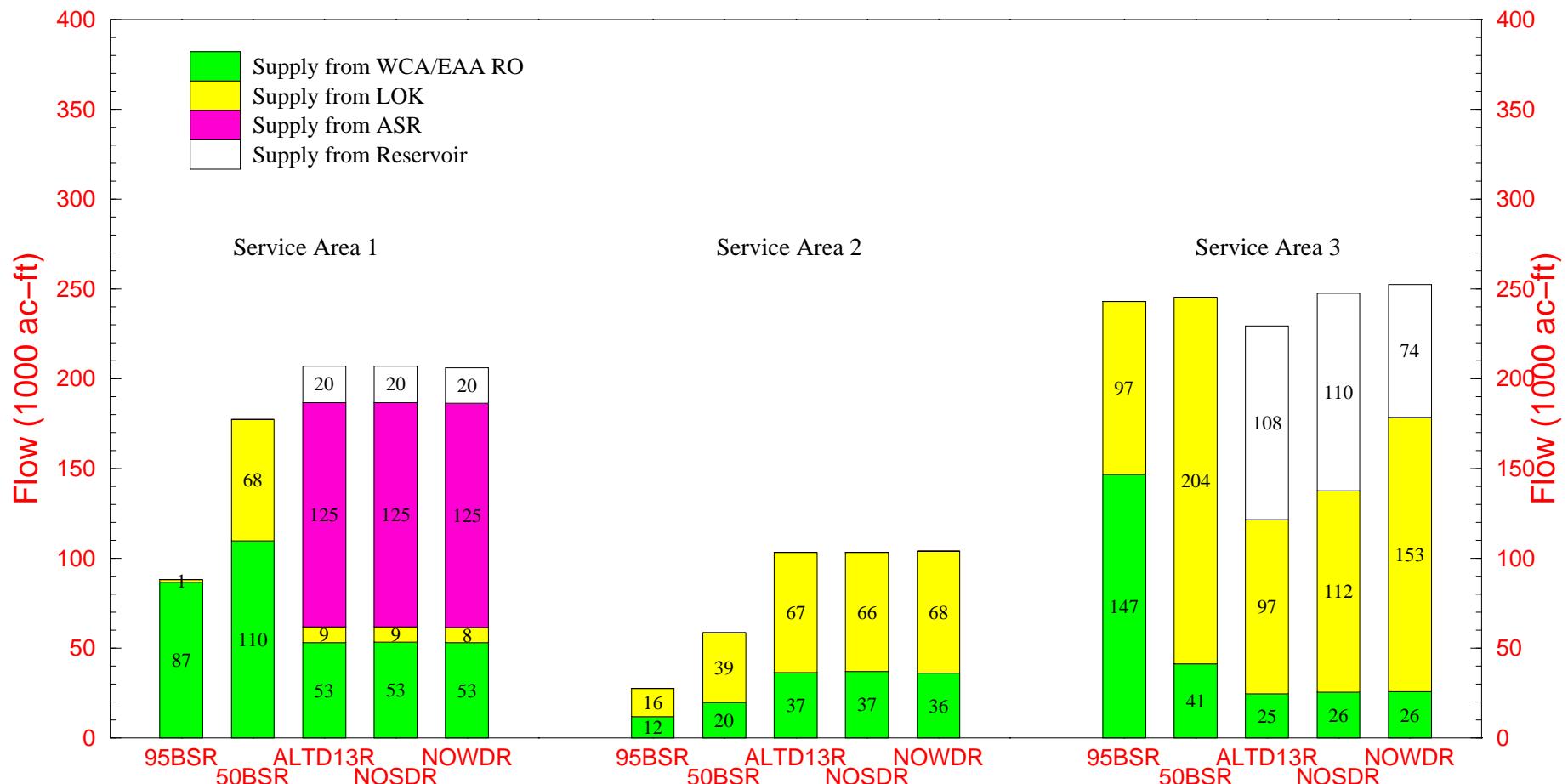


Fig. 6 Mean Annual Regional System Water Supply Deliveries to LEC Service Areas for the five Drought years (71,75,81,85,89)



Note: Structure flows included:
 SA1=S39+LWDD+ADDWLW+ACMEWS+WSL8S+HLFASR+C51FAS+WSC1+S1ATHL+CPBRWS+BPRL8S
 SA2=S38+S34+NNRFAS; SA3=S31+S334+S337+BRDRWS+LBTC6+LBTDNL+LBTL30+LBTSCL+LBTC9+LBTC2+C9RWS

Supply RECEIVED from LOK may be less than what is DELIVERED at LOK due to conveyance constraints.

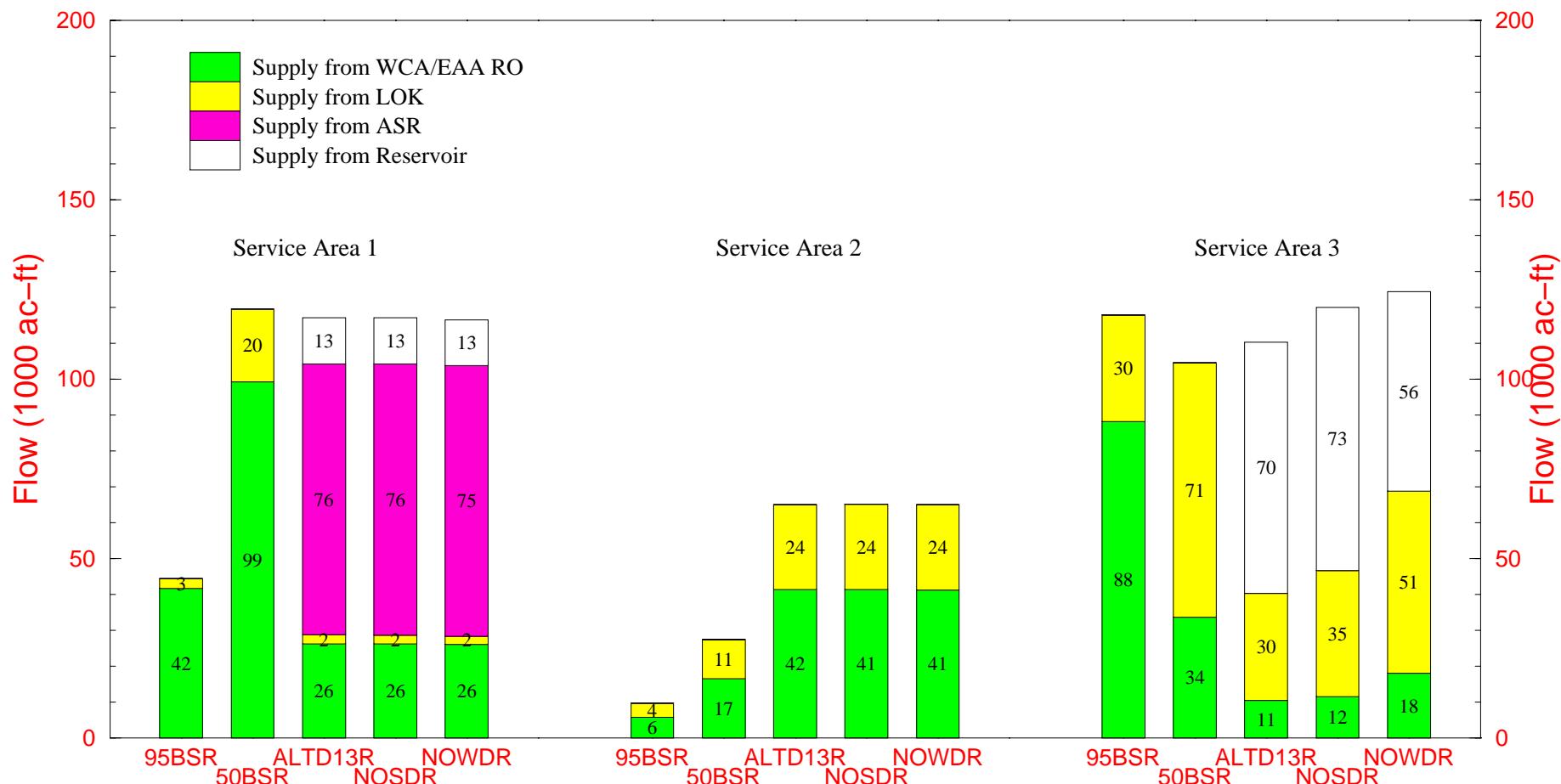
Regional System is comprised of LOK and WCAs.

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Fig. 7 Average Annual Regional System Water Supply Deliveries to LEC Service Areas for the 1965 – 1995 simulation



Note: Structure flows included: SA1=S39+LWDD+ADDWLW+ACMEWS+WSL8S+HLFASR+C51FAS+WSC1+S1ATHL+CPBRWS+BPRL8S
 SA2=S38+S34+NNRFAS; SA3=S31+S334+S337+BRDRWS+LBTC6+LBTDCL+LBTL30+LBTSCL+LBTC9+LBTC2+C9RWS

Supply RECEIVED from LOK may be less than what is DELIVERED at LOK due to conveyance constraints.

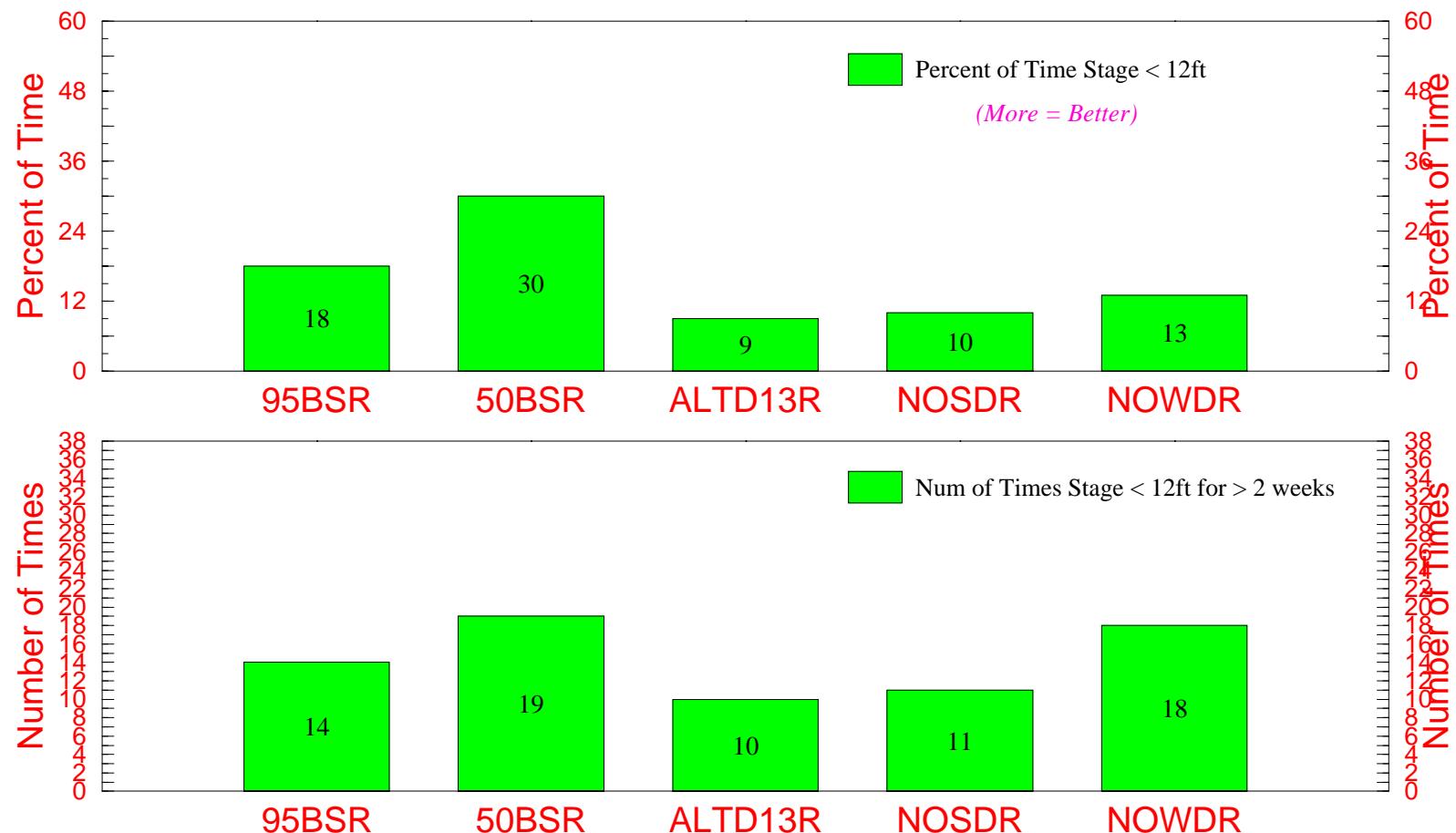
Regional System is comprised of LOK and WCAs.

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Fig. 8 A) Percent of Time Lake Stages Fell < 12ft NGVD
 B) Num of Times Lake < 12ft NGVD for > 2 weeks



* Short-term drying of the marsh allows for seed germination of beneficial plants, improves wading bird and snail kite habitat (eg. regrowth of willow) and helps to maintain the natural diversity and abundance of littoral zone biological communities.

Fig. 9 Number of Undesireable Lake Okeechobee Stage Events

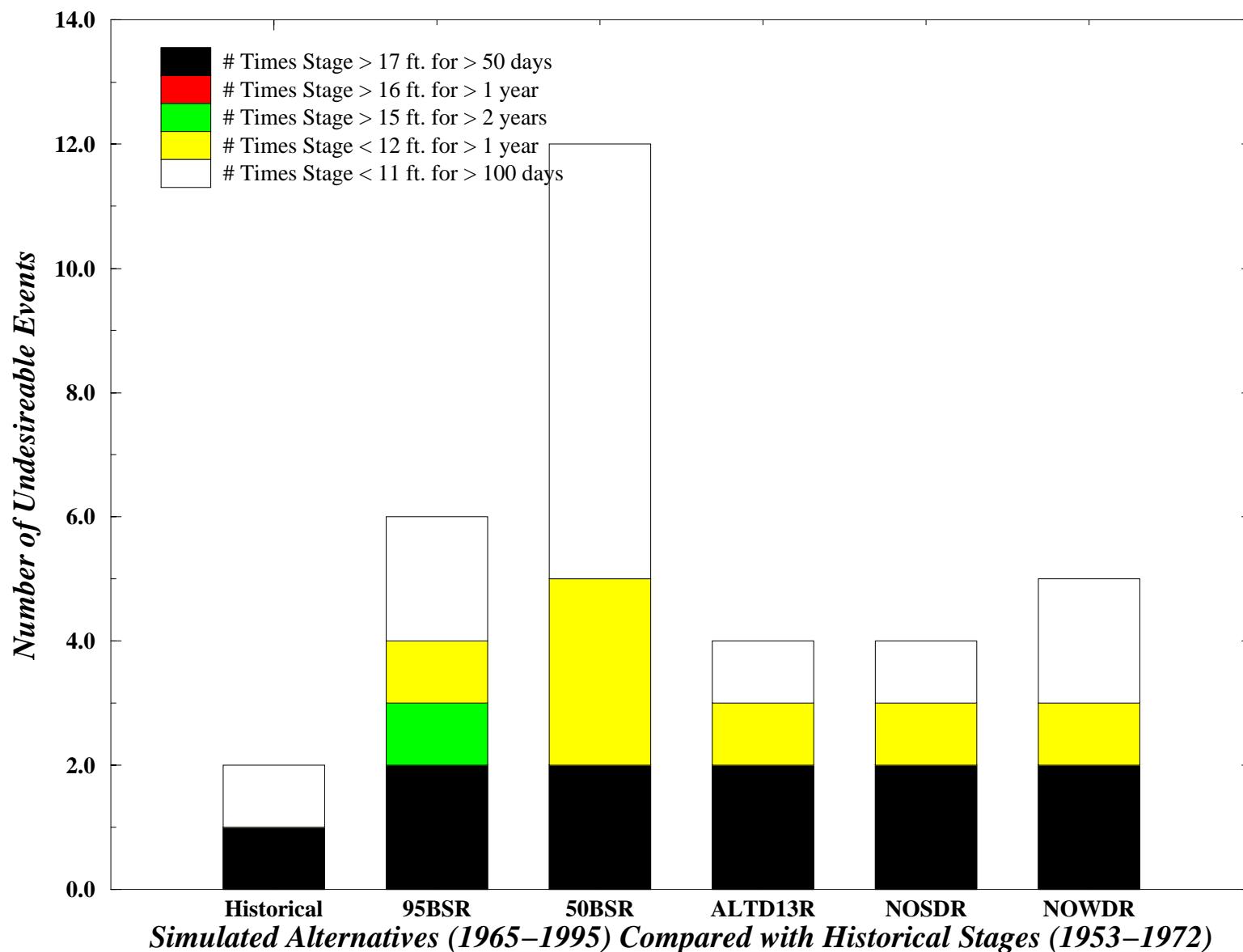


Fig. 10 Lake Okeechobee Stage Duration Curves

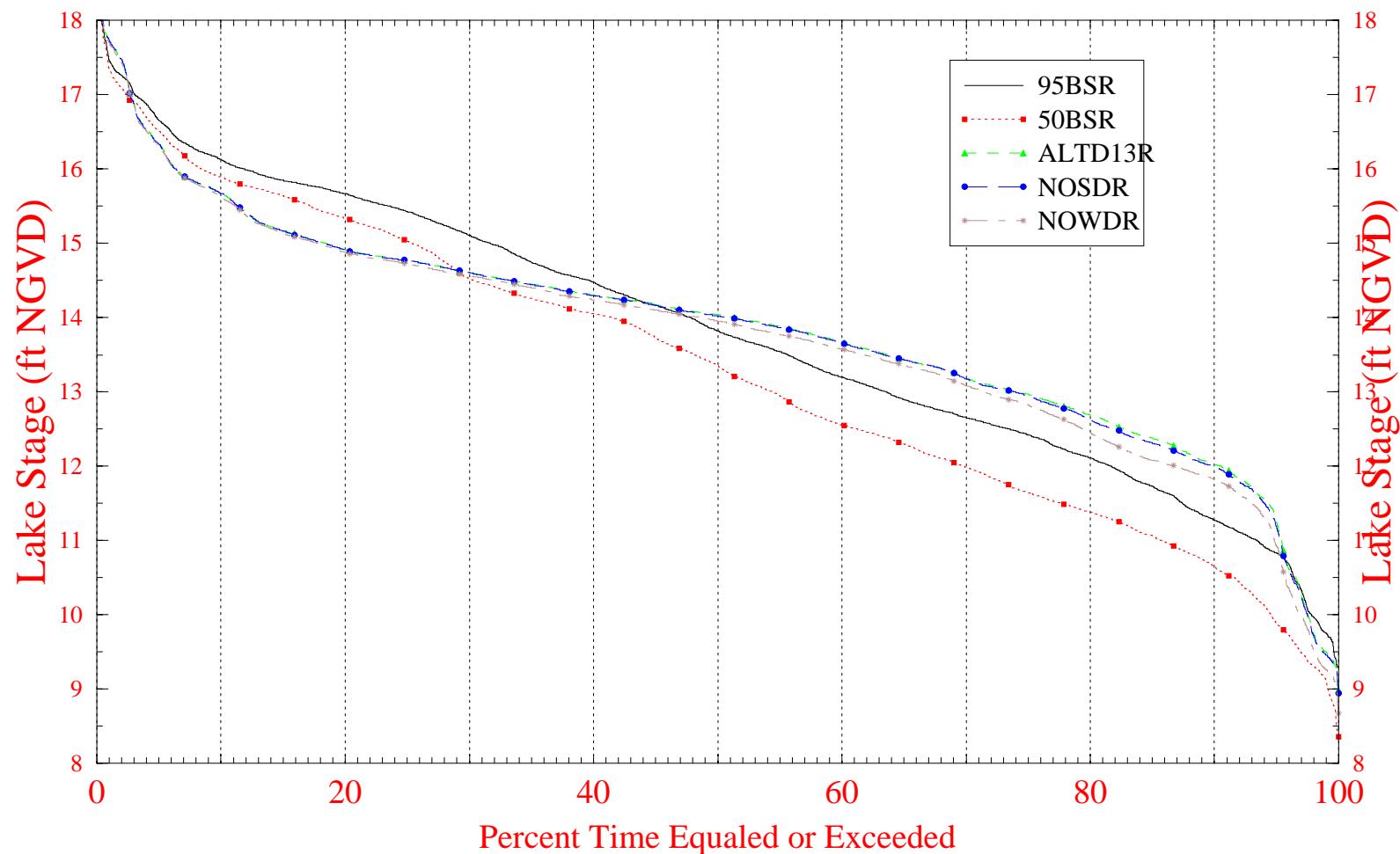
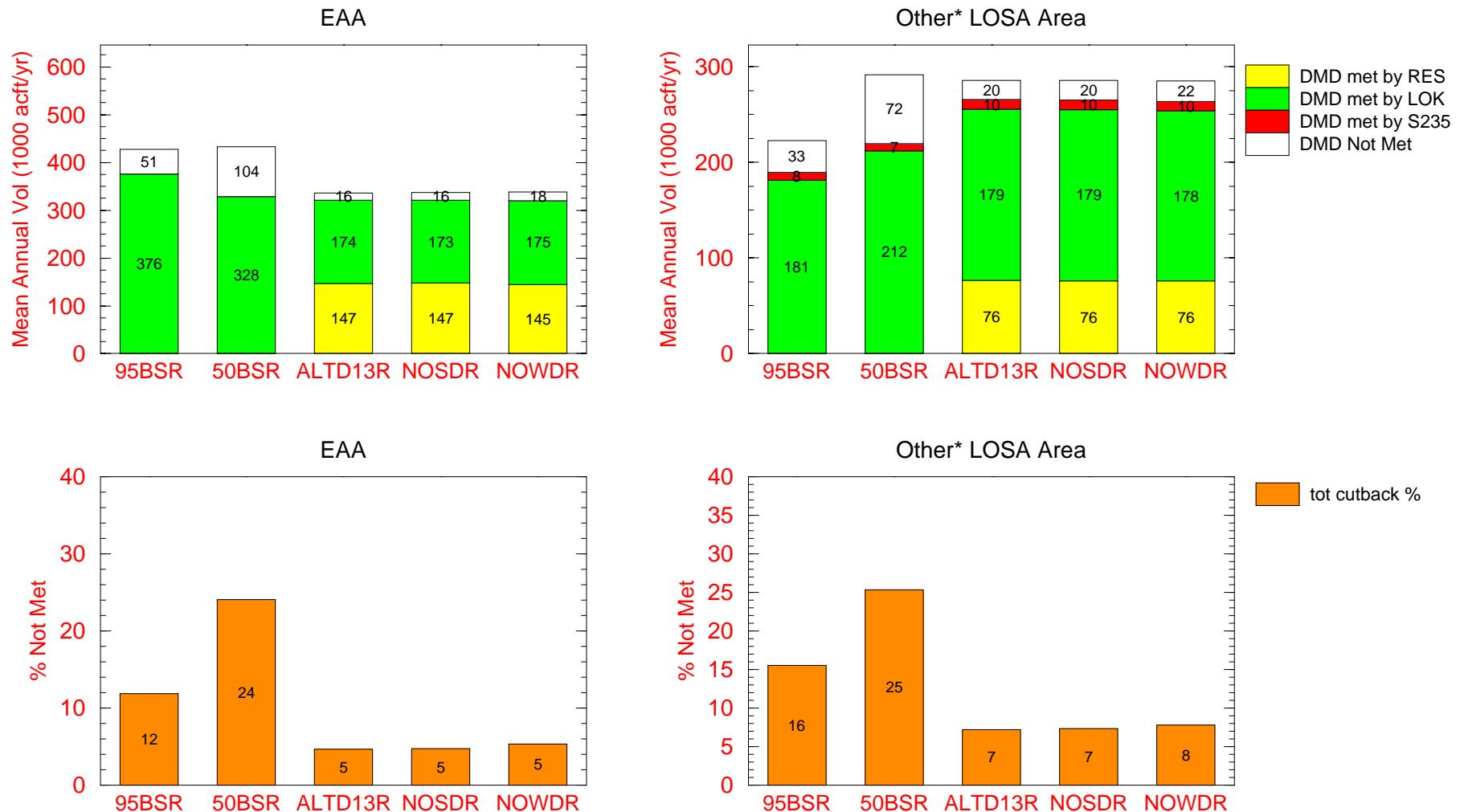


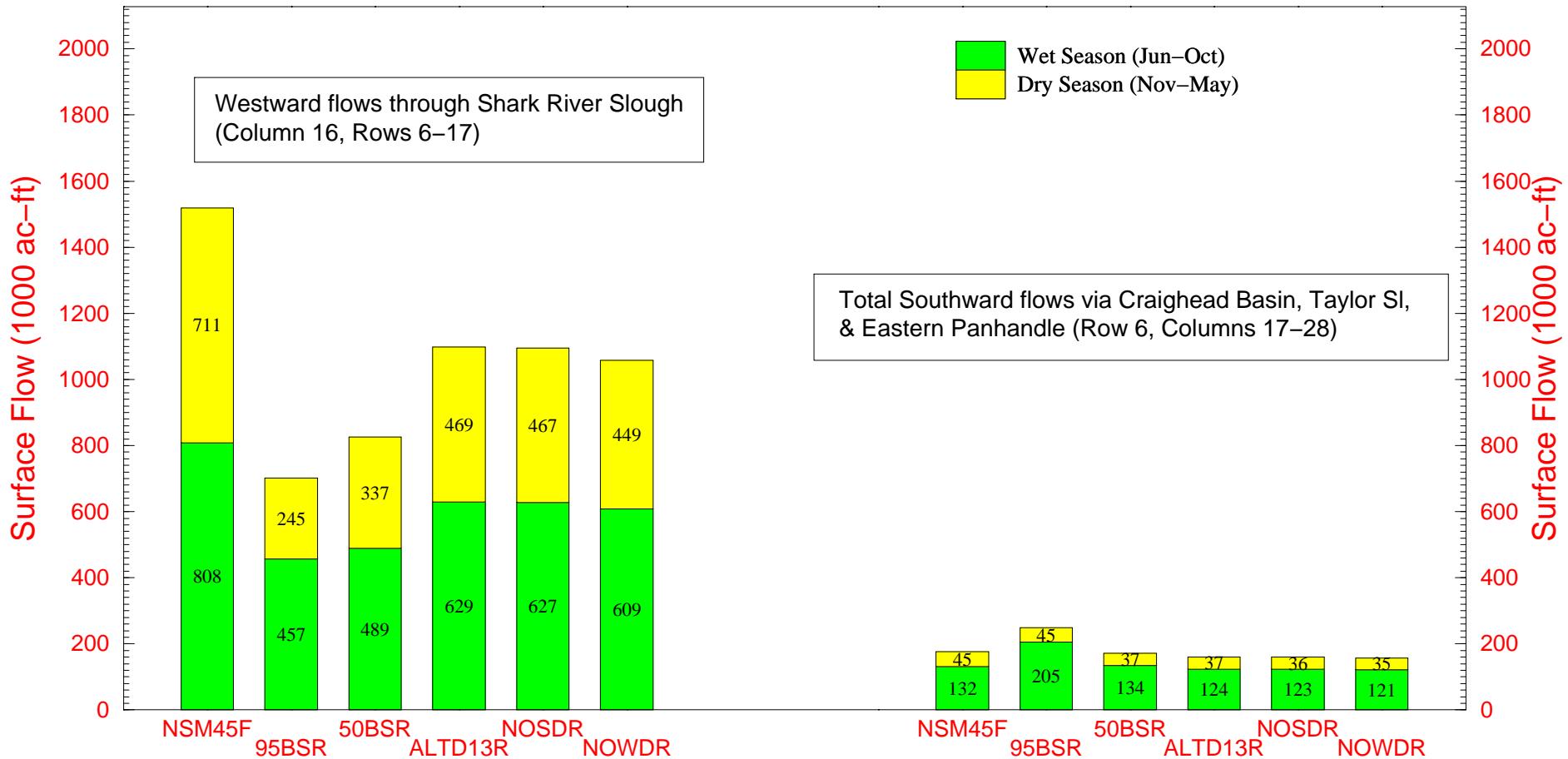
Fig. 11 Mean Annual EAA/LOSA Supplemental Irrigation:
Demands and Demands Not Met
for the 1965 – 1995 Simulation Period



*Other Lake Service SubAreas (S236, S4, L8, C43, C44, and Seminole Indians (Brighton & Big Cypress)).

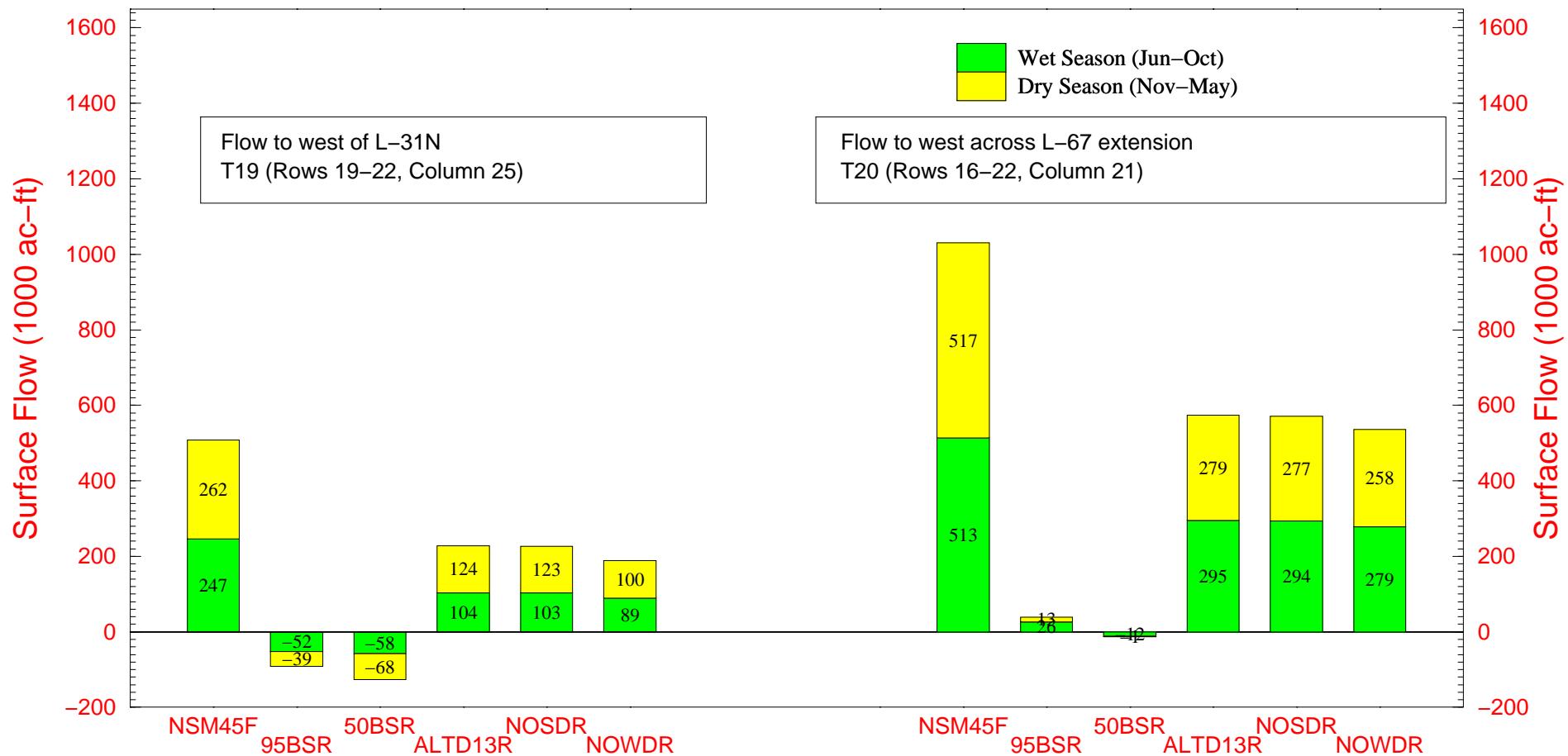
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Fig. 12 Average Annual Overland Flows toward Whitewater Bay and Florida Bay for the 31 year simulation period



Note: NSM water depths at key ENP gage locations are used as operational targets for most alternatives.
NSM flows are NOT targets and are shown for comparative purposes only.

Fig. 13 Average Annual Overland Flow westward within the ENP
for the 31 year simulation period



Note: NSM flows are NOT targets and are shown for comparative purposes only.

Negative values indicate flows from west to east.